## REMARKS

Reconsideration of this application is respectfully requested in view of the following remarks. Claims 1-2 are currently pending in the application and subject to examination.

In the Office Action mailed October 1, 2004, the claims 1-2 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,622,391 to Shirai et al. (Shirai). This rejection is respectfully traversed as follows.

Shirai teaches an incremental rotary encoder that compensates for eccentricity and an n-order harmonic distortion. In Shirai, first and second magnetic sensors are initially arranged so as to be opposite from each other with respect to the axis of a rotary portion. During calibration, the second magnetic sensor is offset from its initial position so that the phase of the output voltage of the second sensor advances or delays with respect to the phase of output voltage of the first sensor by $\lambda/2n$ (where n is the order of the harmonic distortion to be compensated, and the pitch of the harmonic distortion is $\lambda/n$). In operation, the first and second magnetic sensors detect rotation, and the average of the two outputs is calculated. Errors due to eccentricity of the magnetic drum and the n-order harmonic distortion are compensated for, at the same time, by taking the average of the detected outputs of the first and second magnetic sensors. Optionally, third and fourth sensors are included to compensate for an m-order harmonic distortion. See Shirai, FIG. 3; col. 2, line 42 – col. 3, line 33; and col. 10, line 42 – col. 11, line 51.

Shirai mathematically describes the error at each of the sensors (equations 1, 2, and 3 in cols. 10-11). However, in Shirai, the equations are used only to prove the

effects of averaging the outputs of the sensors, and do not correspond to calculations taking place in the invention. Furthermore, the equations used by Shirai do not include the calculated initial phase $\varphi_i$.

Shirai discloses physically offsetting a second sensor and taking an average of two sensor outputs to compensate for errors in a rotary encoder. Shirai does not teach or suggest that "when the angle detecting means detects an angle $\Theta n$...an amplitude $A_i$ and an initial phase $\varphi_i$ (i= 1, 2, ..., N/2 or (N-1)/2) are calculated," as recited in claim 1. Furthermore, Shirai does not disclose or suggest "storing means for storing an error function ...which is a periodic function of a detected angle $\Theta a$ having the calculated amplitude $A_i$ and the calculated initial phase $\varphi_i$ as coefficients is arranged, the detected angle $\Theta a$ detected by the angle detection means is substituted for the variables $\Theta$ in the equation of the error function $E(\Theta)$ stored by the storing means, and a value obtained by subtracting the value $E(\Theta a)$ obtained by the substitution from the detected angle $\Theta a$ is outputted by the output means," as recited in claim 1. Thus, Shirai does not teach or suggest the combination of features recited in claim 1, and claim 1 is patentable over Shirai.

Similarly to as discussed above in reference to claim 1, Shirai does not teach or suggest that "when the angle detecting means detects an angle $\Theta n$...an amplitude $A_i$ and an initial phase $\varphi_i$ (i= 1, 2, ..., N/2 or (N-1)/2) are calculated," as recited in claim 2. Furthermore, Shirai does not disclose or suggest "storing means for storing an error function...which is a periodic function of the detected angle $\Theta a$ having at least one amplitude $A_{k1}, A_{k2}, \ldots A_{km}$ and at least one initial phase $\varphi_{k1}, \varphi_{k2}, \ldots, \varphi_{km}$ (k1, k2, ..., km is at least one of natural numbers from 1 to N/2 or (N-1)/2) of the calculated amplitudes $A_i$

and the calculated initial phases $\varphi_i$ as coefficients is arranged, the detected angle $\Theta a$ detected by the angle detection means is substituted for the variables $\Theta$ in the equation of the error function $E(\Theta)$ stored by the storing means, and a value obtained by subtracting the value $E(\Theta a)$ obtained by the substitution from the detected angle $\Theta a$ is outputted by the output means," as recited in claim 2. Thus, Shirai does not teach or suggest the combination of features recited in claim 2, and claim 2 is patentable over Shirai.

For all of the above reasons, it is respectfully submitted that the claims now pending patentability distinguish the present invention from the cited references. Accordingly, reconsideration and withdrawal of the outstanding rejections and an issuance of a Notice of Allowance are earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is encouraged to telephone the undersigned representative at the number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of time. The fee for this extension may be charged to our Deposit Account No. 01-2300. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300.

Respectfully submitted,

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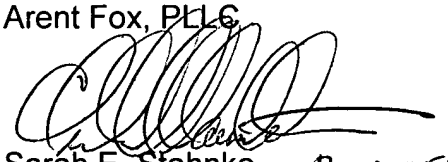

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